Election of Claims

In reply to the Restriction Requirement, Applicants elect Group I, Claims 1-27, drawn to methods of identifying and administering agents that alter NAD-dependent acetylation of histone proteins. This election is made without traverse.

Preliminary Amendment of the Specification and Claims

The Specification has been amended at page 15, lines 7 through 14 to correct self-evident errors in GenBank Accession Nos. AI465098, AI465820, and AI466061.

Also, Applicants have amended independent Claim 1 to eliminate the limitation that the protein is a histone protein, and to include the limitation that the acetylation status that is altered by the method of the invention consists essentially of NAD-dependent acetylation status.

Support for amendment of independent Claim 1 to eliminate the limitation that the protein is a histone protein can be found in the specification at page 2, lines 7-9; page 33, lines 26-29; page 38, lines 25-30; and page 40, lines 21-27.

Support for the new limitation that the acetylation status consists essentially of NAD-dependent acetylation status can be found in the specification at page 55, line 26 through page 56, line 3. As described therein, lysine position 16, deacetylation of which by Sir2 is NAD-dependent, was deacetylated by the presence of Sir2 and NAD, while other residues on the same peptide, namely lysine 5, lysine 8, and lysine 12, deacetylation of which is not NAD dependent, were poor substrates for Sir2 activity. Therefore, Applicants have demonstrated a method of altering acetylation status of at least one amino acid residue in a protein (in this case a histone protein), wherein the acetylation status consisted essentially of NAD-dependent acetylation status, by reaction with a Sir2 protein; the activity of Sir2 was specific to NAD-dependent deacetylation.

No new matter has been added.

CONCLUSION

In view of the above amendments and remarks, it is believed that all claims are in condition for allowance, and it is respectfully requested that the application be passed to issue. If the Examiner feels that a telephone conference would expedite prosecution of this application, he is invited to call Applicants' undersigned attorney.

Respectfully submitted,

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MARKED UP VERSION OF AMENDMENTS

Specification Amendments Under 37 C.F.R. § 1.121(b)(1)(iii)

Replace the paragraph at page 15, lines7 through 14 with the below paragraph marked up by way of bracketing and underlining to show the changes relative to the previous version of the paragraph.

Figure 19 depicts the amino acid sequence alignment of the core domain of ySir2 (SEQ ID NO: 14), yHST1 (SEQ ID NO: 15), yHST2 GenBank Accession NO: U39063, (SEQ ID NO: 16), yHST3 GenBank Accession No: U39062, (SEQ ID NO: 17), yHST4 GenBank Accession No: NC_001136 (SEQ ID NO: 18), mSir2alpha (mSir2α, SEQ ID NO: 19), mSir2beta (mSir2β, SEQ ID NO: 20), mSirg (mSir2γ, SEQ ID NO: 21), and deduced amino acid sequences of Sir2-like core domains (GenBank Accession No: [A1465098] AI465098, SEQ ID NO: 22; GenBank Accession No: [A1465820] AI465820, SEQ ID NO: 23; GenBank Accession No: [A1466061] AI466061, SEQ ID NO: 24).

Claim Amendments Under 37 C.F.R. § 1.121(c)(1)(ii)

1. (Amended) A method of altering the [NAD-dependent] acetylation status of at least one amino acid residue in a [histone] protein, the acetylation status consisting essentially of NAD-dependent acetylation status, by altering the activity of a Sir2 protein.